

Form PTO-1449	U.S. Department of Commerce Patent and Trademark Office	ATTY. DOCKET NO. PB60213	INTERNATIONAL APPLICATION NO. PCT/EP04/04001
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		10/552571	
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U.S. PATENT DOCUMENTS

Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
AA	4,202,819	5/13/80	Kellett <i>et al.</i>	260	245.3	

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	BA	WO98/33896	06 Aug 1998	PCT				
	BB	WO01/30977	03 May 2001	PCT				
	BC	WO03/040372	15 May 2003	PCT				
	BD	WO00/03581	27 Jan. 2000	PCT				
	BE	JP 53-104796	12 Sept 1978	Japan				
	BF	ES 550549	1987	Spain				
	BG	EP 0 550549	20 Sept 1990	EP				
	BH	2,108,113	10 Apr 1995	Canada				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

CA	Liras P., et al., "Clavulanic acid, a β -lactamase inhibitor: biosynthesis and molecular genetics," <i>Applied Microbiology and Biotechnology</i> , Springer Verlag Berlin, Germany (2000) 54(4):467-475.
CB	Mosher R., et al., "Genes Specific for the Biosynthesis of Clavam Metabolites Antipodal to Clavulanic Acid are Clustered with the Gene for Clavamate Synthase 1 in <i>Streptomyces Clavuligerus</i> ," <i>Antimicrobial Agents and Chemotherapy</i> , American Society for Microbiology, Washington, DC (May 1999) 43(5):1215-1224.
CC	A.L. Demain, "Biosynthesis and Regulation of Beta-Lactam Antibiotics", <i>50 Years of Penicillin Applications, History & Trends</i> (1990).
CD	Townsend, et al., "Biosynthesis of clavulanic Acid: Origin of the C ₃ Unit," <i>J. Am. Chem. Soc.</i> , 107(4):1066-1068 (1985).
CE	Valentine, et al., "Evidence that Arginine is a Later Metabolic Intermediate than Ornithine in the Biosynthesis of Clavulanic Acid by <i>Streptomyces Clavuligerus</i> ," <i>J. Chem. Soc. Chem. Comm.</i> , 15:1210-1211 (1993).

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)		APPLICANT Barry BARTON, Susan JENSEN, Alison Michelle GRIFFIN and Annie WONG	
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

CF	Janc, et al., "Emerging Evidence for a Shared Biosynthetic Pathway Among Clavulanic Acid and the Structurally Diverse Clavam Metabolites," <i>Bioorg. Med. Chem. Lett.</i> , 3:2313-2316 (1993).		
CG	Rohl, et al., "Biological properties and mode of action of clavams," <i>Arch. Microbiol.</i> , 147:315-320 (1987).		
CH	Aidoo, et al., "Cloning, sequencing and disruption of a gene from <i>Streptomyces clavuligerus</i> involved in clavulanic acid biosynthesis," <i>Gene</i> , 147:41-46 (1994).		
CI	Sambrook, et al., <i>Molecular Cloning: A Laboratory Manual, 2nd Edition</i> . Cold Spring Harbor Laboratory, Cold Spring Harbor, NY (1989).		
CJ	"Postassium Clavulanate," <i>British Pharmacopoeia</i> (1993); Addendum (1994) pp. 1362-1363.		
CK	"Clavulanate Potassium," <i>British Pharmacopoeia Official Monographs, USP 23 NF18</i> pp: 384-385 (1985).		
CL	Hopwood, et al., <i>Genetic Manipulation of Streptomyces. A Cloning Manual</i> (1985).		
CM	Stahl, et al., "Development and Application of Nucleic Acid Probes," <i>Nucleic Acid Techniques in Bacterial Systematics</i> . Ed. E. Stackebrandt & M. Goodfellow. Toronto: John Wiley & Sons, pp. 204-248 (1991).		
CN	Doran, et al., "Isolation and Characterization of a β -Lactamase-Inhibitory Protein from <i>Streptomyces Clavuligerus</i> and Cloning and Analysis of the Corresponding Gene," <i>J. Bacteriol.</i> 172(9):4909-4918 (1990).		
CO	Vieira, et al., "Production of Single-Stranded Plasmid DNA," <i>Methods Enzymol.</i> , 153: 3-11 (1987).		
CP	Sanger, et al., "DNA Sequencing with Chain-terminating Inhibitors," <i>Proc. Natl. Acad. Sci. USA</i> , 74: 5463-5467 (1977).		
CQ	Ward, et al., "Construction and Characterisation of a Series of Multi-Copy Promoter-Probe Plasmid Vectors for <i>Streptomyces</i> Using the Aminoglycoside Phosphotransferase Gene from <i>Tn5</i> as Indicator," <i>Mol. Gen. Genet.</i> 203: 468-478 (1986).		
CR	Pruess, et al., "A New Clavam Antibiotic from <i>Streptomyces Clavuligerus</i> ," <i>Journal of Antibiotics</i> , XXXVI(3): 208-212 (Mar. 1983).		
CS	Paradkar, et al., "Functional analysis of the Gene Encoding the Clavamate Synthase 2 Isoenzyme Involved in Clavulanic Acid Biosynthesis in <i>Streptomyces Clavuligerus</i> ," <i>Journal of Bacteriology</i> , 177: 1307-1314 (1995).		
CT	Hodgson, J.E. et al., "Clavulanic Acid Biosynthesis in <i>Streptomyces Clavuligerus</i> : Gene Cloning and Characterization," <i>Gene</i> , (1995) Vol. 166, pp. 49-55		
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CU	Busby, R.W., "Expression and Purification of Two Isozymes of Clavamate Synthase and Initial Characterization of the Iron Binding Site," <i>J. Biological Chem.</i> , (1995), Vol. 270(9), pp. 4262-69
CV	Brown, D. et al., "Structures of Three Novel β -lactams Isolated from Streptomyces Clavuligerus," <i>J.C.S. Chem. Comm.</i> , (1979), pp. 282-3
CW	Marsh, E.N. et al., "Two Isozymes of Clavamate Synthase Central to Clavulanic Acid Formation: Cloning and Sequencing of Both Genes from Streptomyces Clavuligerus," <i>Biochemistry</i> , (1992), Vol. 31, pp. 12648-57
CX	Elson, et al., "Studies on the Biosynthesis of Clavulanic Acid." <i>J. Antibiotics</i> , XXXI(6): 568 (1978)
CY	Evans, R. H. et al., "Ro 22-5417, A New Clavam Antibiotic from Streptomyces Clavuligerus II. Fermentation, Isolation and Structure" <i>J. Antibiotics</i> , (1983), Vol. 36(3), pp. 213-216
CZ	Muller, J-C. et al, "Ro 22-5417, A New Clavam Antibiotic from Streptomyces Clavuligerus III Absolute Stereochemistry," <i>J. Antibiotics</i> , (1983), Vol. 36(3), pp. 216-224
CAA	King, H.D. et al., "Clavamycins, New Clavam Antibiotics from Two Variants of Streptomyces Hygroscopicus I. Taxonomy of the Producing Organisms, Germentation, and Biological Activities," <i>J. Antibiotics</i> , (1986), Vol. 39(4), pp. 510-15
CBB	Janc, J.W. et al., "Purification and Characterization of Clavamate Synthase from Streptomyces Antibioticus," <i>J. Biological Chem.</i> , (1995), Vol. 270(10), pp. 5399-5404
CCC	Iwata-Reuly, D. and C. A. Townsend, "Common Origin of Clavulanic Acid and Other Clavam Metabolites in Streptomyces," <i>J. Am. Chem. Soc.</i> , (1992), Vol. 114, pp. 2762-3
CDD	Paradkar, A. S. and S. E. Jensen, "Functional Analysis of the Gene Encoding the Clavamate Synthase 2 Isoenzyme Involved in Clavulanic Acid Biosynthesis in Streptomyces Clavuligerus," <i>J. Bacteriology</i> , (1995), Vol 177(5), pp. 1307-14
CEE	Baldwin, J. E. et al., "Enzymes of Valcalavam Biosynthesis," <i>Tetrahedron Letters</i> , (1994), Vol. 35(17), pp. 2783-6
CFF	Egan, L.A. et al., "Probable Role of Clavaminic Acid as the Terminal Intermediate in the Common Pathway to Clavulanic Acid and the Antipodal Clavam Metabolites," <i>J. Am. Chem. Soc.</i> , (1997), Vol. 119, pp. 2348-55

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